

# STOUT HARDKOROWY POPRAWKA

- Gravity **15 BLG**
- ABV **6.2 %**
- IBU **57**
- SRM **49.8**
- Style **American Stout**

## Batch size

- Expected quantity of finished beer **20 liter(s)**
- Trub loss **5 %**
- Size with trub loss **21 liter(s)**
- Boil time **60 min**
- Evaporation rate **22 %/h**
- Boil size **28.1 liter(s)**

## Mash information

- Mash efficiency **75 %**
- Liquor-to-grist ratio **3 liter(s) / kg**
- Mash size **18.3 liter(s)**
- Total mash volume **24.4 liter(s)**

## Steps

- Temp **67 C**, Time **70 min**
- Temp **76 C**, Time **10 min**

## Mash step by step

- Heat up **18.3 liter(s)** of strike water to **74.8C**
- Add grains
- Keep mash **70 min** at **67C**
- Keep mash **10 min** at **76C**
- Sparge using **15.9 liter(s)** of **76C** water or to achieve **28.1 liter(s)** of wort

## Fermentables

| Type  | Name                        | Amount         | Yield  | EBC  |
|-------|-----------------------------|----------------|--------|------|
| Grain | Pale Ale Maris Otter        | 3.2 kg (52.5%) | 80 %   | 5    |
| Grain | Strzegom Monachijski typ I  | 1 kg (16.4%)   | 79 %   | 16   |
| Grain | słód kawowy Belgia          | 0.5 kg (8.2%)  | 75.5 % | 500  |
| Grain | żytni czekoladowy Weyermann | 0.5 kg (8.2%)  | 73 %   | 700  |
| Grain | Płatki owsiane              | 0.3 kg (4.9%)  | 85 %   | 3    |
| Grain | Słód Midnight Wheat Briess  | 0.2 kg (3.3%)  | 73 %   | 1100 |
| Grain | palony Black Bestmalz       | 0.2 kg (3.3%)  | 73.5 % | 1200 |
| Grain | Strzegom Karmel 600         | 0.2 kg (3.3%)  | 68 %   | 601  |

## Hops

| Use for | Name                   | Amount | Time   | Alpha acid |
|---------|------------------------|--------|--------|------------|
| Boil    | Columbus/Tomahawk/Zeus | 20 g   | 60 min | 16.8 %     |
| Boil    | Cascade                | 10 g   | 20 min | 6.7 %      |
| Boil    | Simcoe                 | 10 g   | 20 min | 13.3 %     |
| Boil    | Cascade                | 20 g   | 7 min  | 6.7 %      |

|                     |         |      |       |        |
|---------------------|---------|------|-------|--------|
| Boil                | Simcoe  | 20 g | 7 min | 13.3 % |
| Aroma (end of boil) | Cascade | 10 g | 1 min | 6.7 %  |
| Aroma (end of boil) | Simcoe  | 10 g | 1 min | 13.3 % |

### Yeasts

| Name                              | Type | Form | Amount | Laboratory      |
|-----------------------------------|------|------|--------|-----------------|
| Mangrove Jack's M44 US West Coast | Ale  | Dry  | 11 g   | Mangrove Jack's |

### Extras

| Type        | Name  | Amount | Use for | Time   |
|-------------|-------|--------|---------|--------|
| Water Agent | kreda | 5 g    | Mash    | 80 min |
| Fining      | mech  | 5 g    | Boil    | 15 min |